

REMARKS

Claims 55-70 are all the claims pending in the application. Claims 84-96 are cancelled above. Claims 55-70 stand rejected on prior art grounds. Applicants respectfully traverse these rejections based on the following discussion.

I. The Prior Art Rejections

Claims 84-86, 87-89, 91-93, and 94-95 stand rejected under 35 USC §102(e) as being anticipated by Miller et al. (US Patent No. 6,452,411). Claims 55-69 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Steiner (US Patent No. 4,291,404) in view of Miller. Claim 70 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Steiner in view of Miller, and further in view of Roy et al. (US Patent No. 6,499,121) hereinafter Roy. Claims 90 and 96 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Miller and further in view of Roy.

As explained in greater detail below, Applicants appreciate the Examiner's desire to succinctly categorize the claimed invention as a combination of two concepts, testing and portability; however, the invention is more than just a portable testing device. Instead, the invention is designed to test integrated circuit chips while they are being transported to increase manufacturing efficiency by allowing longer testing times and by testing devices during a period of time when the devices would otherwise sit idle. Therefore, the claims define structural features that relate to such transportation based testing (e.g., a transportable test box, a power supply in the test box, test boards having multiple sockets in the test box, etc.) that would not have been obvious given the teachings of Steiner, Miller, and Roy.

Roy and Miller teach parallel testing of multiple chips using a known good chip, as well as across-device and within-device testing. Steiner teaches a portable testing device used to test individual chips in the field. The combination of Steiner with Roy and/or Miller is problematic because modifying Steiner to allow the testing of multiple chips in parallel destroys its ability to remain easily portable. The advantages of the structure in Steiner are its small size, light weight, and low-power consumption that allow

it to be easily carried by a service technician to perform in-field testing at remote locations. Modifying Steiner to perform simultaneous testing of multiple chips would increase its size, weight, and power consumption and destroy its intended function. Therefore, it is initially argued below that a *prima facie* case of obviousness has not been set forth.

Further, even if one ordinarily skilled in the art had made the combination proposed in the Office Action, there still is no teaching of the transportable test box, or a power supply within such a test box. To the contrary, the most that such a combination can teach is a portable self-powered test board for simultaneously testing multiple chips (using a known good die, cross-check testing, and within-chip testing). More specifically, the portable device described in Steiner can only be described as a test board in that the portable test device includes sockets on the exterior to which integrated circuit chips are to be attached. There is no concept in the prior art of record of a box that would surround and protect such a test board (or multiple test boards as in the claims) in-transit, or of a power supply that is located within such a box.

Applicants strongly disagree with the conclusion reached in the Office Action that the term "transported" can be any form of movement no matter how small, because this diverges substantially from the plain meaning of the claim language and from the intended use of the portable testing device disclosed in Steiner. More specifically, Steiner clearly explains that the "portability" feature of its testing apparatus relates to the ability to transport the test apparatus to the device under test to allow a field technician to travel to a defective device and test individual chips that are removed from such a device. There is no conceptual teaching of utilizing the portable testing device in Steiner for the purpose of testing devices while they are being transported. Therefore, Steiner is devoid of teaching a structure for accomplishing this purpose, including the test box in which various test boards and a power supply are positioned.

While Applicants agree that the language of claims being examined should be provided with their broadest reasonable interpretation so as to insure adequate examination and the production of high quality patents, in this instance it is Applicants' position that the Examiner's interpretation of the term "transported" is unreasonable and diverges from the overall context of the structure being defined in the claims and the

invention described in the specification. In other words, while a chip may be placed on the portable testing device of Steiner and that testing device can be moved, such disclosure does not teach the "transportable test box" defined in the claims because, given the overall context of the claims and the proper reading of the claim language in light of the specification, the term "transportable" in this situation clearly defines a structure that is designed to test integrated circuit chips when they are being transported from one location to another. This is conceptually different than movement of a portable testing device during the time when a technician in the field is attempting to diagnose a defective device. Simply put, Steiner is devoid of any concept similar to the type of transportation being defined in the claims. Thus, it is Applicants position that Steiner does not teach or suggest the transportable structure defined by Applicants' claims.

For these and other reasons that are detailed below, Applicants submit that the claimed invention is patentable over the applied prior of record. In addition, it is Applicants position that previous claims 84-96 are similarly patentable; however, in order to narrow the number of issues on appeal, those claims have been cancelled without prejudice or disclaimer.

A. The 102(e) Rejection Based on Miller

The cancellation of claims 84-96 renders this rejection moot.

B. The 103(a) Rejection Based on Steiner in view of Miller

1. No *Prima Facie* Case of Obviousness

Initially, Applicants submit that the Office Action does not set forth a *prima facie* case of obviousness. The Office Action admits that Steiner does not disclose that the test board can hold more than one integrated circuit chip; however, the Office Action makes reference to Miller as showing test boards that hold multiple chips. However, Applicants respectfully submit that modifying the device in Steiner to hold multiple chips would destroy the operational functionality of the device in Steiner. More specifically, column 2,

lines 10-49 of Steiner explain that the primary purpose of the single-chip test device is to provide a miniaturized hand-held battery operated field testing device that minimizes the memory space required and that prolongs battery life. Having multiple sockets and the ability to test multiple chips would destroy this functionality by making the device excessively large and making the device high in power consumption.

The device disclosed in Steiner was designed to be able to evaluate a chip during an in-field test procedure where a non-functional product is being tested at a remote location (see column 2, lines 4-9). Therefore, if a service technician were to suspect that a certain integrated circuit chip were defective, he could remove the chip from the non-functional product in question and individually test the chip using the device disclosed in Steiner. There would be little or no advantage in providing the device shown in Figure 1 of Steiner with the ability to test multiple chips because the diagnostic methods performed by field technicians generally evaluate each component individually so as to sequentially eliminate the potential causes of a defective condition. Once again, providing multiple sockets would merely make the device larger and make the device consume more power, which are contrary to the goals stated in Steiner of providing a small, light weight, low power consumption hand-held device utilized for in-field testing by field technicians.

The device described in Miller is utilized during the manufacturing stage when many of the same devices are produced and where simultaneous testing of a identical devices increases testing efficiency. The device in Miller is provided with a continuous power supply and is not concerned with limiting the power consumption during testing. In addition, the size of the device in Miller does not need to be limited because it is not portable. Because of these differences, one ordinarily skilled in the art would not have been motivated to use the teachings of Miller in combination with the teachings of Steiner. For example, column 2, lines 1-3 of Steiner explains that large testing devices used during manufacturing (such as that disclosed in Miller) are impractical for use in field maintenance work. Therefore, Steiner created a device that was intentionally different than the device in Miller. Modifying the device to be larger and less practical for field maintenance work destroys the primary function of the device in Steiner. Thus,

one ordinarily skilled in the art would not have modified the device in Steiner as suggested in the Office Action.

Miller relates to non-portable manufacturing environment with unlimited power supply, while Steiner relates to an in-field testing unit that has a limited power supply and is limited by size and weight constraints. Because of these differences, Applicants submit that it is improper to combine the teachings of Steiner with those of Miller because the references come from such divergent testing environments and because there is no motivation in either reference to make the combination proposed in the Office Action.

Miller teaches parallel testing of multiple chips using a known good chip. Steiner teaches a portable testing device used to test individual chips in the field. The combination of Steiner with Miller is problematic because modifying Steiner to allow the testing of multiple chips in parallel destroys its ability to remain easily portable. The advantages of the structure in Steiner are its small size, light weight, and low-power consumption, which allow it to be easily carried by a service technician to perform in-field testing at remote locations. Modifying Steiner to perform simultaneous testing of multiple chips would increase its size, weight, and power consumption and destroy its intended function. Therefore, it is initially argued that a *prima facie* case of obviousness has not been set forth.

2. Prior Art Does Not Teach or Suggest the Claimed Invention

Steiner only shows a test board and not a box for holding boards, much less a power supply in the box for powering the boards. As mentioned above, the invention is more than just a portable testing device. Instead, the invention is designed to test integrated circuit chips while they are being transported to increase manufacturing efficiency by allowing longer testing times and by testing devices during a period of time when the devices would otherwise sit idle. Therefore, the claims define structural features that relate to such transportation based testing (e.g., a transportable test box, a power supply in the test box, test boards having multiple sockets in the test box, etc.) that would not have been obvious given the teachings of Steiner and Miller.

Miller teaches parallel testing of multiple chips using a known good chip. Steiner teaches a portable testing device used to test individual chips in the field. As shown above, it is initially argued below that a *prima facie* case of obviousness has not been set forth. Further, even if one ordinarily skilled in the art had made the combination proposed in the Office Action, there still is no teaching of the transportable test box, or a power supply within such a test box. To the contrary, the most that such a combination can teach is a hand-held portable self-powered test board for simultaneously testing multiple chips (using a known good die). More specifically, the portable device described in Steiner can only be described as a test board in that the portable test device includes sockets on the exterior to which integrated circuit chips are to be attached. There is no concept in the prior art of record of a box in which the test board is located that would protect such a test board (or multiple test boards as in the claims) in-transit, or of a power supply that is located within such a box.

Applicants strongly disagree with the conclusion reached in the Office Action that the term "transported" can be any form of movement no matter how small because this diverges substantially from the plain meaning of the claim language and from the intended use of the portable testing device disclosed in Steiner. More specifically, Steiner clearly explains that the "portability" feature of its testing apparatus relates to the ability to transport the test apparatus to the device under test to allow a field technician to travel to a defective device and test individual chips that are removed from such a device (col 2, lines 35-39). There is no conceptual teaching of utilizing the portable testing device in Steiner for the purpose of testing devices while they are being transported. Therefore, Steiner is devoid of teaching a structure for accomplishing this purpose including the test box in which various test boards and a power supply are positioned.

While Applicants agree that the language of the claims being examined should be provided with their broadest reasonable interpretation so as to insure adequate examination and the production of high quality patents, in this instance it is Applicants' position that the Examiner's interpretation of the term "transported" is unreasonable and diverges from the overall context of the structure being defined in the claims and the invention described in the specification. In other words, while a chip may be placed on the portable testing device of Steiner and that testing device can be moved, such

disclosure does not teach the "transportable test box" defined in the claims because, given the overall context of the claims and the proper reading of the claim language in light of the specification, the term "transportable" in this situation clearly defines a structure that is designed to test integrated circuit chips when they are being transported from one location to another. This is conceptually different than movement of a portable testing device during the time when a technician in the field is attempting to diagnose a defective device. Simply put, Steiner is devoid of any concept similar to the type of transportation being defined in the claims. Thus, it is Applicants position that Steiner does not teach or suggest the transportable structure defined by Applicants' claims.

As shown in Applicants' Figure 1, the claimed invention comprises a test box 10 in which a plurality of test boards 11 are mounted. Applicants' Figure 3 illustrates one of the test boards that includes a number of sockets adapted to hold integrated circuit chips. The Office Action proposes that Figure 1 of Steiner discloses a test box and that Figure 2 of Steiner discloses a test board. However, Applicants respectfully submit that Steiner only discloses a battery powered single chip test board and does not disclose any form of an in-transit test box for holding test boards.

More specifically, column 3, lines 11-24 of Steiner explain that Figure 1 shows a device for testing a chip and column 4, lines 37-42 explain that Figure 2 of Steiner illustrates the same device in a schematic format. Therefore, Applicants submit that Figures 1 and 2 do not illustrate a test box and test boards as proposed in the Office Action, but instead only illustrate at most a chip test board. In Figure 1 of Steiner, openings 10 are holes for receiving a dual in-line package (DIP), buttons 11-13 are user operation buttons, and item 16 is a display. The same items are shown in Figure 2. Therefore, Applicants submit that it is clear that Figures 1 and 2 illustrate the same device and that Steiner does not teach any form of a test box that is designed to hold test boards as in the invention defined by independent claims 55 and 63.

In addition, neither Miller nor Steiner describes testing circuitry that operates while in transit. Miller provides a fixed testing apparatus that is immovable and cannot be used in-transit. Steiner describes an in-field test device that is designed to be hand-held and used by a field technician when repairing a non-operating product. There is no suggestion in Steiner that the device could test a chip while being transported. Instead,

such a scenario is only proposed in the Office Action as occurring when the portable test device of Steiner is moved (however so slightly). Therefore, Applicants respectfully submit that there is no teaching or suggestion of a device where the testing circuitry operates while in transit.

Thus, as shown above, many aspects of the invention defined by independent claims 55 and 63 are not taught or suggested by the prior art references. No reference teaches "a transportable test box". The references are not properly combinable to make the single-chip testing device in Steiner capable of testing multiple devices. Therefore, the references do not teach or suggest that "each of said test boards comprises: sockets." In addition, there is no teaching of performing the testing of the chips while in transit, or as defined by independent claims 55 and 63, there is no teaching of any device "adapted to hold integrated circuit chips to be tested while being transported." Therefore, Applicants respectfully submit that independent claims 55 and 63 are patentable over the proposed combination of references. Further, dependent claims 56-62 and 64-70 are similarly patentable not only by virtue of their dependency from a patentable independent claim but also by virtue of the additional features of the invention define. In view the foregoing, the Examiner is respectfully requested to reconsider and withdraw this rejection.

C. The 103(a) Rejection Based on Steiner, Miller, and Roy

1. No *Prima Facie* Case of Obviousness

The Office Action makes reference to Roy for teaching comparing outputs of ASIC chips to identify defective chips. However, it is Applicants position that Roy is not properly combinable with Steiner for the same reasons that Miller was not properly combinable with Steiner. Therefore, Applicants again submit that a *prima facie* case of obviousness has not been set forth.

More specifically, Roy is not directed to a portable device, nor is Roy directed to a device utilized for in-field testing. Roy presents a large device for testing multiple ASIC chips simultaneously given very little space and power restrictions. Combining

Roy with Steiner would destroy the portability and low-power consumption functionality of the hand-held device in Steiner. Further, Steiner relates to in-field testing devices, while Roy relates to a testing device to be used during manufacturing. There is no motivation within any of the references for making the proposed combination.

Therefore, the teachings of Roy are not properly combinable with the teachings of Steiner. Thus, it is Applicants position that the references are not properly combinable to teach the features defined by dependent claim 70.

2. Prior Art Does Not Teach or Suggest the Claimed Invention

Roy it is substantially similar to Miller except that instead of teaching the use of a known good chip, Roy utilizes cross-device and within-device testing. Indeed, Roy and Miller were related applications and filed on the same day. Therefore, Roy adds very little to the previous discussion and the reasoning stated above the also applies here.

Therefore, it is again Applicants position that many aspects of the invention defined by independent claims 55 and 63 are not taught or suggested by the prior art references. No reference teaches "a transportable test box". The references are not properly combinable to make the single-chip testing device in Steiner capable of testing multiple devices. Therefore the references do not teach or suggest that "each of said test boards comprises: sockets." In addition, there is no teaching of performing the testing of the chips while in transit, or as defined by independent claims 55 and 63, there is no teaching of any device "adapted to hold integrated circuit chips to be tested while being transported." Therefore, Applicants respectfully submit that independent claims 55 and 63 are patentable over the proposed combination of references. Further, dependent claims 56-62 and 64-70 are similarly patentable not only by virtue of their dependency from a patentable independent claim but also by virtue of the additional features of the invention define. In view the foregoing, the Examiner is respectfully requested to reconsider and withdraw this rejection. Thus, it is Applicants position that dependent claims 70 is patentable and that this rejection should be removed. In view the foregoing, the Examiner is respectfully requested to reconsider and withdraw this rejection.

D. The 103(a) Rejection Based on Miller in view of Roy

The cancellation of claims 84-96 renders this rejection moot.

II. Formal Matters and Conclusion

In view of the foregoing, Applicants submit that claims 55-70 all the claims presently pending in the application, are patentably distinct from the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary.

Please charge any deficiencies and credit any overpayments to Attorney's Deposit Account Number 09-0456.

Respectfully submitted,

Dated: 12/19/03



Frederick W. Gibb, III
Reg. No. 37,629

McGinn & Gibb, P.L.L.C.
2568-A Riva Road
Suite 304
Annapolis, MD 21401
(301) 261-8071
Customer Number: 29154